

CLAIMS:

1. A card intermediate, comprising:

(i) a business form layer of paper or film having an upper surface and a lower surface;

(ii) optionally, a first thin film layer, adhesively secured to the upper surface of said business form layer;

5 (iii) a second thin film layer having an upper surface and a lower surface, the upper surface being permanently adhesively secured to the lower surface of said business form layer; the lower surface of the second thin film layer having a permanent adhesive and being designated as

10 permanent interface A;

(iv) a third thin film layer having an upper surface and a lower surface, the upper surface being adhesively secured, directly, or through an underlying thin coated layer to the lower permanent interface A of said second thin film layer

15 (iii) at a separable interface designated as interface B;
and

(v) a card, having edges and defined in said first thin film layer (ii), said business form layer (i), and said second film layer (iii) by a diecut extending through said layers

20 (i), (ii), and (iii) but not through said third thin film layer (iv), wherein the card is provided with a pattern of selective variable adhesion through variable surface-treatment of the upper surface of said fourth layer (iv),

the lower surface of layer (iii) or both of said surfaces in
25 a pattern such that the adhesion at separable interface B is
always less than the adhesion at permanent interface A.

2. An article as in claim 1, wherein the pattern of
the differentially treated extends under the card area
defined by the diecut.

3. An article as in claim 1, wherein the film layer or
layers comprise a polyester film, 0.2 to 7 mils thick.

4. An article as in claim 1, wherein the business form
layer comprises paper stock of 15 to 150 # weight.

5. An article as in claim 1, wherein the means for
providing selective variable adhesion through variable
surface treatment is selected from corona-treatment, flame-
treatment, plasma-treatment, an obviously equivalent-
5 treatment, or a combination of any of the foregoing
treatments.

6. An article as in claim 5, wherein said treatment is
carried out under conditions which produce a measurable
differential of at least 1 dyne/cm measured at the time of
treatment.

7. An article as in claim 1, wherein the pattern of the treated area covers from at least about 10 to about 90 percent of the surface and the untreated area covers from at least about 90 to about 10 percent of the surface.

8. An article as in claim 7, wherein the pattern of the treated area covers from at least about 40 to about 60 percent of the surface and the untreated area covers from at least about 60 to about 40 percent of the surface.

9. An article as in claim 1, wherein pattern of the treated area comprises a geometric form.

10. An article as in claim 9, wherein said geometric form is selected from a saw-tooth, a sine-wave, a herringbone, a closed curve, a polygon, or any obvious equivalent thereof.

11. An article as in claim 1, wherein the surface tension of the surface treatment is set to a predetermined level by increasing or decreasing the power of the treatment, by increasing or decreasing the exposure time of the treatment, or by increasing or decreasing the distance
5 between the treatment source and the surface to which said

treatment is applied.

12. A form with an integral clean release card, comprising:

- (i) a business form layer of paper or film having an upper surface and a lower surface;
- 5 (ii) optionally, a first thin film layer, adhesively secured to the upper surface of said business form layer;
- (iii) a second thin film layer having an upper surface and a lower surface, the upper surface being permanently adhesively secured to the lower surface of said business
- 10 form layer; the lower surface of the second film layer having a permanent adhesive and being designated as permanent interface A;
- (iv) a third thin film layer having an upper surface and a lower surface, the upper surface being adhesively secured,
- 15 directly, or through an underlying thin coated layer to the lower permanently bonded interface A of said second thin film layer (iii) at a separable interface designated as interface B; and
- (v) a card, having edges and defined in said first thin
- 20 film layer (ii), said business form layer (i), and said second film layer (iii) by a diecut extending through said layers (i), (ii), and (iii) but not through said third thin film layer (iv), wherein the card is provided with a

pattern of selective variable adhesion through variable
25 treatment of the upper surface of said fourth layer (iv),
the lower surface of layer (iii) or both of said surfaces in
a pattern such that the adhesion at separable interface B is
always less than the adhesion at permanent interface A.

13. A form as in claim 12, wherein the pattern of the
differentially treated area extends under the card area
defined by the diecut.

14. A form as in claim 12, wherein the film layer or
layers comprise a polyester film, 0.2 to 7 mils thick.

15. A form as in claim 12, wherein the business form
layer comprises paper stock of 15 to 150 # weight.

16. A form as in claim 12, wherein the means for
providing selective variable adhesion through variable
surface treatment is selected from corona-treatment, flame-
treatment, plasma-treatment, an obviously equivalent-
5 treatment, or a combination of any of the foregoing
treatments.

17. A form as in claim 16, wherein said treatment is
carried out under conditions which produce a measurable

differential of at least 1 dyne/cm measured at the time of treatment.

18. A form as in claim 15, wherein the pattern of the treated area covers from at least about 10 to about 90 percent of the surface and the untreated area covers from at least about 90 to about 10 percent of the surface.

19. A form as in claim 18, wherein the pattern of the treated area covers from at least about 40 to about 60 percent of the surface and the untreated area covers from at least about 60 to about 40 percent of the surface.

20. A form as in claim 12, wherein the pattern of the treated area comprises a geometric form.

21. A form as in claim 20, wherein said geometric form is selected from a saw-tooth, a sine-wave, a herring-bone, a closed curve, a polygon, or any obvious equivalent thereof.

22. A form as in claim 12, wherein the surface tension of the surface treatment is set to a predetermined level by increasing or decreasing the power of the treatment, by increasing or decreasing the exposure time of the treatment,

5 or by increasing or decreasing the distance between the treatment source and the surface to which said treatment is applied.

23. A card intermediate, comprising:

- (i) a business form layer of paper or film having an upper surface and a lower surface;
- (ii) optionally, a first thin film layer, adhesively secured
5 to the upper surface of said business form layer;
- (iii) a second thin film layer having an upper surface and a lower surface, the upper surface being permanently adhesively secured to the lower surface of said business form layer; the lower surface of the second thin film layer
10 being adhesively secured, directly, or through an underlying thin coated layer at a separable interface designated B to;
- (iv) a third thin film layer having an upper surface and a lower surface, the upper surface being adhesively secured, directly, or through an underlying thin coated layer to the
15 lower separable interface B of said second thin film layer
- (iii) at a permanent interface designated as interface A;
- and
- (v) a card, having edges and defined in said first thin film layer (ii), said business form layer (i), and said second
20 film layer (iii) by a diecut extending through said layers (i), (ii), and (iii) but not through said third thin film

layer (iv), wherein the card is provided with a pattern of selective variable adhesion through variable surface-treatment of the upper surface of said fourth layer (iv),
25 the lower surface of layer (iii) or both of said surfaces in a pattern such that the adhesion at separable interface B is always less than the adhesion at permanent interface A.

24. An article as in claim 23, wherein the pattern of the differentially treated area extends under the card area defined by the diecut.

25. An article as in claim 23, wherein the film layer or layers comprise a polyester film, 0.2 to 7 mils thick.

26. An article as in claim 23, wherein the business form layer comprises paper stock of 15 to 150 # weight.

27. An article as in claim 23, wherein the means for providing selective variable adhesion through variable surface treatment is selected from corona-treatment, flame-treatment, plasma-treatment, an obviously equivalent-
5 treatment, or a combination of any of the foregoing treatments.

28. An article as in claim 27, wherein said treatment

is carried out under conditions which produce a measurable differential of at least 1 dyne/cm measured at the time of treatment.

29. An article as in claim 23, wherein the pattern of the treated area covers from at least about 10 to about 90 percent of the surface and the untreated area covers from at least about 90 to about 10 percent of the surface.

30. An article as in claim 29, wherein the pattern of the treated area covers from at least about 40 to about 60 percent of the surface and the untreated area covers from at least about 60 to about 40 percent of the surface.

31. An article as in claim 23, wherein pattern of the treated area comprises a geometric form.

32. An article as in claim 31, wherein said geometric form is selected from a saw-tooth, a sine-wave, a herring-bone, a closed curve, a polygon, or any obvious equivalent thereof.

33. An article as in claim 23, wherein the surface tension of the surface treatment is set to a predetermined level by increasing or decreasing the power of the

treatment, by increasing or decreasing the exposure time of
5 the treatment, or by increasing or decreasing the distance
between the treatment source and the surface to which said
treatment is applied.

34. A form with an integral clean release card,
comprising:

- (i) a business form layer of paper or film having an upper
surface and a lower surface;
- 5 (ii) optionally, a first thin film layer, adhesively secured
to the upper surface of said business form layer;
- (iii) a second thin film layer having an upper surface and a
lower surface, the upper surface being permanently
adhesively secured to the lower surface of said business
10 form layer; the lower surface of the second thin film layer
being adhesively secured, directly, or through an underlying
thin coated layer at a separable interface designated B to;
- (iv) a third thin film layer having an upper surface and a
lower surface, the upper surface being adhesively secured,
15 directly, or through an underlying thin coated layer to the
lower separable interface B of said second thin film layer
(iii) at a permanent interface designated as interface A;
and
- (v) a card, having edges and defined in said first thin
20 film layer (ii), said business form layer (i), and said

second film layer (iii) by a diecut extending through said layers (i), (ii), and (iii) but not through said third thin film layer (iv), wherein the card is provided with a pattern of selective variable adhesion through variable
25 treatment of the upper surface of said fourth layer (iv), the lower surface of layer (iii) or both of said surfaces in a pattern such that the adhesion at separable interface B is always less than the adhesion at permanent interface A.

35. A form as in claim 34, wherein the pattern of the differentially treated area extends under the card area defined by the diecut.

36. A form as in claim 34, wherein the film layer or layers comprise a polyester film, 0.2 to 7 mils thick.

37. A form as in claim 34, wherein the business form layer comprises paper stock of 15 to 150 # weight.

38. A form as in claim 34, wherein the means for providing selective variable adhesion through variable surface treatment is selected from corona-treatment, flame-treatment, plasma-treatment, an obviously equivalent-
5 treatment, or a combination of any of the foregoing treatments.

39. A form as in claim 38, wherein said treatment is carried out under conditions which produce a measurable differential of at least 1 dyne/cm measured at the time of treatment.

40. A form as in claim 35, wherein the pattern of the treated area covers from at least about 10 to about 90 percent of the surface and the untreated area covers from at least about 90 to about 10 percent of the surface.

41. A form as in claim 40, wherein the pattern of the treated area covers from at least about 40 to about 60 percent of the surface and the untreated area covers from at least about 60 to about 40 percent of the surface.

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42. A form as in claim 34, wherein the pattern of the treated area comprises a geometric form.

43. A form as in claim 42, wherein said geometric form is selected from a saw-tooth, a sine-wave, a herring-bone, a closed curve, a polygon, or any obvious equivalent thereof.

44. A form as in claim 34, wherein the surface tension of the surface treatment is set to a predetermined level by

increasing or decreasing the power of the treatment, by
increasing or decreasing the exposure time of the treatment,
5 or by increasing or decreasing the distance between the
treatment source and the surface to which said treatment is
applied.

45. A card intermediate as in claim 1, wherein the
optional thin film layer is coated with a print receptive
coating to receive a computer generated output such as a
laser or inkjet imaging.

46. A form as in claim 12, wherein the optional thin
film layer is coated with a print receptive coating to
receive a computer generated output such as a laser or
inkjet imaging.

47. A card intermediate as in claim 23, wherein the
optional thin film layer is coated with a print receptive
coating to receive a computer generated output such as a
laser or inkjet imaging.

48. A form as in claim 34, wherein the optional thin
film layer is coated with a print receptive coating to
receive a computer generated output such as a laser or
inkjet imaging.

49. An article as defined in claim 1 where the article includes a radio frequency transmitter buried in at least one of the article elements.

50. An article as defined in claim 12 where the article includes a radio frequency transmitter buried in at least one of the article elements.

51. An article as defined in claim 23 where the article includes a radio frequency transmitter buried in at least one of the article elements.

52. An article as defined in claim 34 where the article includes a radio frequency transmitter buried in at least one of the article elements.

53. A method of making a removable polymer substrate laminate or a segment thereof which comprises

(a) treating a polymer substrate with a surface treatment technique to selectively modify the surface in a

5 predetermined pattern;

(b) coating a portion of the treated surface of the product of step (a) with an adhesive and a breakaway layer; and

(c) laminate a second substrate onto the adhesive and a breakaway layer the product of step (b) .